

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Footnote US246 of Section 2.106 of the Commission's Rules to Enable More Efficient Interference-Free Sharing of Spectrum Above 95 GHz	)	RM-11847
	)	
Spectrum Horizons	)	ET Docket No. 18-21
	)	

**THE BOEING COMPANY'S OPPOSITION TO PETITION FOR RULEMAKING**

The Boeing Company ("Boeing") provides these comments in opposition to the mmWave Coalition's ("Coalition") Petition for Rulemaking ("Petition").<sup>1</sup> Procedurally, the Petition requests rule changes that the Commission considered and rejected in the recent *Spectrum Horizons Order*.<sup>2</sup> Substantively, the changes the Petition seeks to Footnote US246 to allow emissions into the passive bands could jeopardize critical infrastructure and operations.<sup>3</sup> While Boeing supports expanded spectrum use for unlicensed operations, including in spectrum bands above 95 GHz, the Commission must continue to protect the important services already operating in US246 bands above 95 GHz. Accordingly, Boeing encourages the agency to deny or dismiss the Petition under either Rule 1.401(e) or 1.407 as repetitive and plainly not warranting consideration.

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<sup>1</sup> *Amendment of Footnote US246 of Section 2.106 of the Commission's Rules to Enable More Efficient Interference-Free Sharing of Spectrum Above 95 GHz*, Petition for Rulemaking, ET Dkt. No. 18-21 (Aug. 12, 2019) ("Petition").

<sup>2</sup> *Spectrum Horizons*, First Report and Order, 34 FCC Rcd 1605 (2019) ("*Spectrum Horizons Order*").

<sup>3</sup> 47 C.F.R. § 2.601, FN US246 ("*US246*").

## I. INTRODUCTION

A global leader in the design and manufacture of aircraft and aerospace systems, Boeing employs a very wide range of wireless systems, including systems operating in millimeter wave (“mmW”) spectrum. Boeing utilizes these systems for research and development, worker safety and automated manufacturing, aircraft flight testing, and within the operations of each aircraft, defense system, and space vehicle it manufactures. Because of this critical dependency on spectrum resources, Boeing holds more Office of Engineering and Technology (“OET”) experimental licenses than any other company. It also employs additional spectrum resources on behalf of federal agencies under National Telecommunications and Information Administration (“NTIA”) frequency assignments, including to test and certify wireless communications systems installed in the commercial and governmental aircraft and satellites it manufactures at sites throughout the United States.

Boeing has participated actively in the *Spectrum Horizons* proceeding and supports the *Spectrum Horizons Order* adopted earlier this year. Boeing commends the Commission on optimizing its management of scarce spectrum resources to facilitate the growth of new licensed and unlicensed communications services, while ensuring the safe and reliable operation of existing spectrum uses such as those supporting: public safety, inclement weather forecasting, disaster relief, aircraft navigation and landing systems, flight testing, radar, precision location, and satellite broadband and video distribution, and other important services. The rule change the Petition requests would jeopardize this careful balance and threaten important existing services. For this reason, and because the Commission already rejected the rule change the Petition requests in the *Spectrum Horizons Order*, the Commission should deny or dismiss the Petition.

## II. THE COMMISSION SHOULD DISMISS THE PETITION AS REPETITIVE

The Petition asks the Commission to open a rulemaking on a discrete, but significant, footnote in the U.S. Table of Frequency Allocations that prohibits transmissions in spectrum bands allocated for passive services.<sup>4</sup> The Coalition believes the Commission missed an opportunity to open up a large swath of undercapitalized spectrum above 95 GHz for unlicensed use by declining to take steps to modify US246 during the course of the *Spectrum Horizons* proceeding.<sup>5</sup> However, the issues identified in the Petition were wholly addressed by the Commission in the *Spectrum Horizons Order* when it adopted service rules and a new experimental licensing regime for the spectrum bands above 95 GHz. Accordingly, the agency should dismiss the Petition as “repetitive” under FCC Rule 1.401(e).<sup>6</sup>

The Commission has previously dismissed similar petitions for rulemaking that are not new or novel, and fail to present “any new evidence, facts or circumstance warranting a change in...procedures.”<sup>7</sup> Here, the Coalition proposes to replace the language in US246 that restricts all transmissions in the enumerated bands with a performance-based standard, claiming that this will have a major impact on the use of spectrum above 95 GHz for communications, terahertz

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<sup>4</sup> 47 C.F.R. § 2.106, at FN US246.

<sup>5</sup> See Petition, at 5, citing *Spectrum Horizons Order*, at FN 32.

<sup>6</sup> 47 C.F.R. § 1.401(e).

<sup>7</sup> *Amendment of Section 90.611(d) of the Commission’s Rules Governing Application Processing Procedures for the 900 MHz Private Land Mobile Radio Band*, Order, 4 FCC Rcd 511 (Dec. 27, 1988) (dismissing a petition for rulemaking on the basis that the Commission had already considered and dismissed similar proposals on two prior occasions, and NABER did not present any new evidence warranting a change in circumstance or demonstrating that the expected benefits of providing a preference to existing 800 MHz licensees outweighs those fostered by current application procedures); see also Petition for modification of rule 47 CFR Part 97 Section 97.119, Letter, 27 FCC Rcd 5317 (rel. May 21, 2012) (dismissing petition for third time in five years for failure to provide new facts or changed circumstances).

spectroscopy, and research and development.<sup>8</sup> However, the Commission already declined to amend the language in US246 in favor of an approach that permits applicants to propose use of spectrum allocated exclusively for passive services.<sup>9</sup> In fact, the Commission expressly stated that it selected this approach to avoid unnecessarily “hobbl[ing] valuable research in situations that pose no significant risk to incumbent operations.”<sup>10</sup>

The Petition presents no new evidence to justify why a further rulemaking is needed to adopt additional changes to the protections for passive services in the bands above 95 GHz. The Coalition’s assertion that the United States “may well be discouraged” from investing in research and development is mere conjecture.<sup>11</sup> The only data offered by the Coalition is a chart on mmWave data transmission experiments by country that was published two years before the Commission began the *Spectrum Horizons* proceeding to adopt service rules for those bands and facilitate use.<sup>12</sup> Without providing any evidence to demonstrate a decline in research and development following the adoption of the service rules, or any other change in circumstance, the Petition is attempting to relitigate issues resolved by the *Spectrum Horizons Order*.

### **III. PROPOSED CHANGES US246 TO ALLOW EMISSIONS INTO THE PASSIVE BANDS COULD JEOPARDIZE OTHER CRITICAL INFRASTRUCTURE AND OPERATIONS AND PLAINLY DO NOT WARRANT CONSIDERATION**

In addition to repeating arguments already recently rejected by the Commission, the Petition’s requested rule changes run counter to the public interest and do not warrant agency

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<sup>8</sup> Petition, at 6.

<sup>9</sup> *Spectrum Horizons Order*, at ¶ 14.

<sup>10</sup> *Id.*

<sup>11</sup> Petition, at 6.

<sup>12</sup> *Id.* at Figure 3.

consideration. While the Petition only speculates regarding perceived benefits, changes to the emission protections could result in very real harms to services already operating and providing critical services.

Several of the US246 bands are currently used to assist with weather modeling, as elements of near and midterm weather forecasts. Both NASA and NOAA employ weather modeling systems that measure the noise floor in bands above 95 GHz, and then feed the data into the various models.<sup>13</sup> Because of the protections to the passive bands afforded by US246, anomalous or corrupt data that reduces forecasting accuracy can be identified and discarded to ensure consistent weather predictions. However, introducing operational changes that might raise the noise floor, such as active service emissions, could result in degraded ability or accuracy to forecast.

Section 1.407 of the Commission's Rules authorizes the Commission to deny a petition where there is no sufficient reason to justify the institution of a rulemaking.<sup>14</sup> Moreover, Section 1.401(e) imparts on the FCC "broad authority to summarily deny petitions for rulemaking that 'plainly do not warrant consideration.'"<sup>15</sup> For example, where a petition "has presented no persuasive evidence to warrant consideration," the agency will dismiss it.<sup>16</sup> Similarly here, the

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<sup>13</sup> The "noise floor" is the measure of the signal created from the sum of all the noise sources and unwanted signals within the measurement system, where noise is defined as any signal other than the one being monitored. Since the noise floor is the level of background noise in a signal, any noise introduced by the system below the floor cannot be isolated.

<sup>14</sup> 47 C.F.R. § 1.407.

<sup>15</sup> *Amendment of Section 1.17 of the Commission's Rules Concerning Truthful Statements to the Commission*, Memorandum of Opinion and Order, 19 FCC Rcd 5790, at ¶ 7 (rel. Mar. 23, 2004).

<sup>16</sup> *Mr. David Cavossa*, 19 FCC Rcd 24979, 24980 (OET 2004); *see also Dale E. Reich*, 19 FCC Rcd 23216, ¶ 1 (WTB 2004) (NPRM not warranted where petition "has not made a sufficient showing to support amendment of the rules as requested").

Coalition has failed to identify a justification for commencing a new rulemaking on US246 or how this change would benefit spectrum users.

Indeed, Boeing and others have repeatedly cautioned on the record about the significant harm that can result to the passive services from altering this footnote.<sup>17</sup> There are currently seven U.S. Earth Exploration Satellite Service (“EESS”) missions maintained by NASA and NOAA, three maintained by ESA and EUMETSAT, two by RosHydroMet (Russia), and two by CMA (China) that employ spectrum above 95 GHz.<sup>18</sup> These EESS missions collect atmospheric data that is incorporated into various weather models used by organizations such as the National Weather Service, as well as airlines, government agency, and industry models to ascertain civilian and customer safety in day-to-day operations.

Though the Petition fails to identify any examples of how a change in the US246 footnote will benefit terrestrial services and research therein, the proposed change will have a substantial impact on the functionality of real passive services, such as EESS, that actively rely on existing protections. The Petition contravenes the public interest, lacks justification, and should be dismissed for plainly not warranting consideration.

#### **IV. ADDITIONAL SPECTRUM ABOVE 95 GHZ SHOULD BE IDENTIFIED FOR UNLICENSED OPERATIONS IN NON-PASSIVE SERVICE BANDS**

While Boeing strongly encourages the Commission to continue to protect these critical passive bands, including limiting adjacent band operations, Boeing continues to support identifying additional spectrum for unlicensed operations in the bands above 95 GHz. As

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<sup>17</sup> See Comments of Boeing, ET Dkt. No. 18-21, at 3 (filed May 2, 2018) (“*Boeing Comments*”); see also reply comments of Boeing, ET Dkt. No. 18-21, at 3-4 (filed May 17, 2018) (“*Boeing Reply Comments*”).

<sup>18</sup> See <http://www.wmo-sat.info/oscar/> (last visited Sep. 10, 2019).

Boeing noted in its own comments during the *Spectrum Horizons* proceeding, the Commission should focus on bands that are not shared or adjacent to passive or EESS bands, thereby reducing the number of technical constraints required to operate in the new bands.<sup>19</sup>

## V. CONCLUSION

For the reasons herein, the Commission should dismiss or deny the Petition and preserve the current emission protections for passive services under US246.

Respectfully submitted,

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September 13, 2019

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<sup>19</sup> See Boeing Comments, at 9-12; *see also* Boeing Reply Comments, at 6-7.